

## SEQUENCE LISTING

## SEQ ID NO: 1

MVLLYSQASWDKRSKADALVLPFWMKNSKAQEAAVVDDEDYKLVYQNALSNFSGKKG  
 ETAFLFGNDHTKEQKIVLLGLGKSEEVSGTTVLEAYAQAATTVLRKAKCKTVNILLPTISQ  
 LRFSVEEFLTNLAAGVLSLNYNYPTYHKVDTSLPFLEKVTVMGIVSKVGDKIFRKEESLF  
 EGVYLTRDLVNTNADEVTPPEKLA AVAKDLAGEFASLDVKILDRKAILKEKMGLLA AVA  
 KGAAVEPRFIVLDYQGKPKSKDRTVLIGKGVTFDSGGLDLKPGKAMITMKEDMAGAAT  
 VLGIFSALASLELPINVTGIIPATENAIGSAAYKMGDVYVGMTGLSVEIGSTDAEGRLLA  
 DAISYALKYCNPTRIIDFATLTGAMVVSLGESVAGFFANNDVLARDLAEASSETGEALW  
 RMPLVEKYDQALHSDIADMKNIGSNRAGSITAALFLQRFLEDNPVAVAWAHLDIAGTAYHE  
 KEELPYPKYATGFGVRCLIHMEKFLSK

## SEQ ID NO: 2

MTASGGAGGLGSTQTVDVARAQAAAATQDAQEVIGSQEASEASMLKGCEDLINPAAAT  
 RIKKKGEKFESLEARRKPTADKAEEKSESTEKGDTPLEDRTEDLSEVSGEDFRGLKNS  
 FDDDSSPDEILDALTSKFSDPTIKDLALDYLIQTAPSDGKLKSTLIQAKHQLMSQNPQAIV  
 GGRNVLLASETEASRANTSPSSLRSLYEQVTSSPSNCANLHQMILASYLPSEKTA VMEEFLV  
 NGMVADLKSEGPSIPPAKLQVYMTLSNLQALHSVNSFFDRNIGNLENSLKHEGHAPIPS  
 LTTGNLTKTFLQLVEDKFPSSSKAQKALNELVGPDTGPQTEVLNLFALNGCSPRIFSGA  
 EKKQQLASVITNTLDAINADNEDYKPKGDFPRSSFSSTPPHAPVPQSEIPTSTSTQPPSP

## SEQ ID NO: 3

MCIKRKKTWIAFLAVVCSFCLTGCLKEGGDSNSEKFIVGTNATYPPFEFVDKRGEVVGF  
 IDLAREISNKLKGLTLDVREFSFDALILNLKQHRIDAVITGMSITPSRLKEILMIPYYGEEKH  
 LVLVFKGENKHPLPLTQYRSVAVQTGTYYQAYLQSLSEVHIRSFDSTLEVLMEVMHGKS  
 PVAVLEPSIAQVVLKDFPALSTATIDLPEDQWVLGYGIGVASDRPALALKIEAAVQEIRKE  
 GVLAELEQKWGLNN

## SEQ ID NO: 4

MSEKRKSNKIIGIDLGTNSCVSVMIEGGQPKVIASSEGTRTTPSIVAFKGGETLVGIPAKR  
 QAVTNPEKTLASTKRFIGRKFESEVESEIKTVPYKVAPNSKGDVFDVEQKLYTPEEIGAQI  
 LMKMKETA EAYLGETVTEAVITVPA YFNDSQRASTKDAGRIAGLDVKRIPEPTAAALA  
 YGIDKEGDKKIAVFDLGGGTFDISILEIGDGVFEVLSTNGDTHLGGDDFDGVIINWMLDEF  
 KKQEGIDLSKDNMALQRLKDAAEKAKIELSGVSSTEINQPFITIDANGPKHLALTTLTRAQF  
 EHLASSLIERTKQPCAQALKDAKLSASDIDDVLLVGGMSRMPAVQAVVKEIFGKEPNKG  
 VNPDEVVAIGAAIQGGVVGGEVKDVLLLDVIPLSLGIETLGGVMTPLVERNTTIPTQKKQI  
 FSTAADNQPAVTIVVLQGERPMAKDNKEIGRFDLTIPPAPRGHPQIEVTFDIDANGILHV  
 SAKDAASGREQKIRIEASSGLKEDEIQQMIRDAELHKEEDKQRKEASDVKNEADGMIFRA  
 EKAVKDYHDKIPAE LVKEIEEHIEKVRQAikedASTTAIKAASDELSTHMQKIGEAMQAQ  
 SASAAASSAANAQGGPNINSEDLKKHSFSTRPPAGGSASSTDNIEDADVEIVDKPE

## SEQ ID NO: 5

MHDALQSILAIQELDIKMIRLMRVKKEHQNELAKIQALKTDIRRKVEEKEQEMEKLKDQI  
 KGGEKRIQEISDQINKLENQQA AVKKMDEFNALTQEMTAANKERRTLEHQLSDLMDKQ  
 AGSEDLLISLKESLSSTENSSSAIEEEIRENIRKINEEGRSLLSQRTOQLKETTDPELFSIYERL  
 LNNKKDRVVPIENRVCSGCHIALTPQHENLVRKQDHLVFCEHCSRILYWQELQSPSAE  
 GATTKRRRRRTAV

## SEQ ID NO: 6

MKKFLLLSLMSLSSLPTFAANSTGTIGIVNLRRCLEESALGKKESAEFKMKNQFSNSMG  
KMEEELSSIYSKLQDDDYMEGLSETAAAE LRKKFEDLSAEYNTAQGGYYQILNQSNLKR  
MQKIMEEVKKASETVRIQEGLSVLLNEDIVLSIDSSADKTD A VIKVLDDSFQNN

**SEQ ID NO: 7**

MTTESLETLVEQLSGLTVLELSQLKKLLEEKWDVTAAAPVVA VAGAAAAGDAPASAEP  
TEFAVILEDVPSDKKIGVLKVVREVTGLALKEAKEMTEGLPKTVKEKTSKSDAEDTVKK  
LQEAGAKAVAKGL

**SEQ ID NO: 8**

MKKTALLAALCSVVSLSSCCRIVDCCFEDPCAPIQCSPCESKKKDVDGGCNSCNGYVPA  
CKPCGGDTHQDAKHGPPQARGIPVDGKCRQ

**SEQ ID NO: 9**

MPKIDTCDSCVSNTELLAIRTRVTQSYNEAQ TILSSIPDGIFLLSESGEILICNPQARAILGIP  
EDIQLVTRMFHDFPD TFFGFSVQEALKEVPPKTIRLTLSQELSQKEVEVFVRKNISHDFL  
FLLIRDRSDYRQLEQAIEKYRSISELGKIAATLAHEIRNPLTSISGFATLLKEELSSERHORM  
LNVIEGTRSLNSLVSSMLEYTKIOPLNLRSIDLODESSLPELSLTFPSCTERRTILSPIORSI  
DPDRLRCVIWNLVKNAVEASDEEIFLELHEKGFSVINTGTLPPNIQEKLFIPFFTTKPPQNG  
LGLAEAHKIMRLHGGDLVVSTQDNRTTFTILWTPA

**SEQ ID NO: 10**

MKVILRALCLFLVLPCGCYARVPSFEPFRGA IAPNRYTPKHSPELYFEMGDKYFQA KKKFK  
QALLCFGMITHHFPEHALHPKAQFLVGLCYLEMGHPDLADKALTQYQELADTEYSEQLF  
AIKYSIAQSFANGKRKNIVPLEGF PKLLKADTDALRIFEETV TASSDADLKASALYAKGAL  
LFD RKEYSEAIKTLKKVSLQFP SHSLSPESFTLIAKHCLQALQEPYNEQYLQDARMNAAA  
LRKQHPNHPNTEVENYIHHMCEAYASCLYSTGRFYEKKRKASSAKIYYSIALENFPDTS  
YVAKCNKRRLERLSKQMS

**SEQ ID NO: 11**

MFDVVISDIEAREILDSRGYPTLCVKVITNTGT FG EACVPSGASTGIKEALELRDKDPKRY  
QGKGV LQAISNVEKVLMPALQGFSVFDQITADAIMIDADGTPNKEKLGANAILGVSLAL  
AKAAANTLQRPLYRYLGGSF SHVLPCPMMNLINGGMHATNGLQFQEFMIRPISAPSLTE  
AVRMGAEVFNALKKILQNRQLATGVGDEGGFAPN LASNAEALDLLLTAIETAGFTPRED  
ISLALDCAASSFYNTQDKTYDGKSYADQVGILAE LCEHYPIDSIEDGLAEEDFEGWKLLS  
ETLGDRVQLVGDDL FVTNSALIAEGIAQGLANAVLIKPNQIGTLTETAEAIRLATIQGYAT  
ILSHRSGETEDTTIADLA VAFNTGQIKTGSLSRSERIAKYNRLMAIEEBMGPEALFQDSNPF  
SKA

**SEQ ID NO: 12**

MMKRLLCVLLSTSVFSSPMLGYSASKKDSKADICLAVSSGDQEV SQEDLLKEVSRGFSR  
VAAKATPGVVYIENFPKTGNQAIASPGNKRGFQENPFDYFNDEFFNRFFGLPSHREQQRP  
QQRDAVRGTGFIVSEDGYVVTNHHVVEDAGKIHVTLHDGQKYTAKIVGLDPKTDLAVI  
KIQAEKLPFLTFGNSDQLQIGDWAIAIGNPFG LQATVTVGVISAKGRNQLHIVDFEDFIQT  
DAAINPGNSGGPLLNINGQVIGVNTAIVSGSGGYIGIGFAIPSLMAKRVIDQLISDGQVTRG  
FLGVTLQPIDSELATCYKLEK VYGALVTDVVKGSPA EKAGLRQEDVIVA YNGKEVESLS  
ALRNAISLMMPGTRVVLKIVREGKTIEIPVTVTQIPTEDGV SALQKMGVRVQNTTPEICKK  
LGLAADTRGILVVAVEAGSPAASAGVAPGQLILAVNRQRVASVEELNQVLKNSKGENVL  
LMVSQGDVVRFIVLKSDE

**SEQ ID NO: 13**

MKKINKIVLAVGGTGGHIIPALAAARETFIHEDIEVLLLKGKGLAHFLGDDSEVAYCDIPSGS  
 PFSLRVNRMFSGAKQLYKGYVAALQKIRDFTPDLAIGFGSYHSLPAMLASIRSRIPLFLHE  
 QNIVPGKVNKLFSRFAKGVGMSFAAAGEHFHCRAEEVFLPIRKLSEQIVFPGASPVICVV  
 GGSQGAKILNDVVPKALARIESYSNLYVHHIVGPKGDLQAVSQVYQDAGINHTVTAFD  
 HNMLGVLQASDLVISRSGATMLNELLWVQVPAILIPYPGAYGHQEVNAKFFTHTVGGGT  
 MILQKYLTEESLSKQVLLALDPATSENRRKAMLSAQQKKSFKSLYQFICESL

**SEQ ID NO: 14**

MGNSGFYLYNTQNCVFADNIKVGQMTEPLKDQQIILGTTSTPVA AKMTASDGISLTVSN  
 NPSTNASITIGLDAEKAYQLILEKLGDLGGIADTIVDSTVQDILDKITTDPSLGLLKAFN  
 NFPITNKIQCNGLFTPRNIETLLGGTEIGKFTVTPKSSGSMFLVSADIIASRMEGGVVLALV  
 REGDSKPYAISYGYSSGVPNLCSLRTRINTGLTPTTYSRLVGGLESGVVVWNALSNGNDI  
 LGITNTSNVSFLEVIPQTNA

**SEQ ID NO: 15 (pmpA)(CT412)**

MNRVIEIHAHYDQRQLSQSPNTNFLVHHPYLTLIPKFLLGALIVYAPYSFAEMELAISGHK  
 QGKDRDTFTMISSCPEGTNYIINRKLILSDFSLLNKVSSGGAFRNLAGKISFLGKNSSASIH  
~~EKHININGEGAGVFESESSIEETDLRKLVAEGSESTGGIFTAKEDISEKNNHHHAERNNITKGN~~  
 GGVIQLQGDMKGSVSFVDQRGAIIFTNNQAVTSSSMKHSRGGGAISGDFAGSRILFLNNQ  
 QITFEGNSAVHGGAIYNKNGLVEFLGNAGPLAFKENTTIANGGAIYTSNFKANQQTSPILF  
 SQNHANKKGGAIYAQYVNLEQNQDITRFEKNTAKEGGGAITSSQCSITAHNTIIFSDNAA  
 GDLGGGAILLEGKKPSLTIAHSGNIAFSGNTMLHTTKKASLDRHNSILIKEAPYKIQLAA  
 NKNHSHIFFDPVMALSASSSPIQINAPEYETPFFSPKGMIVFSGANLLDDAREDVANRTSIF  
 NQPVHLYNGTLSIENG AHLIVQSFKQTGGRISLSPGSSLALYTMNSFFHGNISSKEPLEING  
 LSFGVDISPSNLQAEIRAGNAPLRLSGSPSIHDPEGLFYENRDTAASPYQMEILLTSDKIVDI  
 SKFTTDSLVTNKQSGFQGAWHFSWQPNTINNTKQKILRASWLPTGEYVLESNRVGRAVP  
 NSLWSTFLLQTASHNLGDHLCNNRSLIPTSYFGVLIGGTGAEMSTHSSEESFISRLGAT  
 GTSIIRLTPSLTSLGGGSHMFGDSFVADLPEHITSEGIVQNVGLTHVWGPLTVNSTLCAAL  
 DHNAMVRICSKKDHTY GKWDTFGMRGTLGASYTFLEYDQTMRVFSFANIEATNILQRA  
 FTETGYNPRSFSTKLLNIAIPIGIGYEFLGNSSFALLGKGSGIGYSRDIKREN PSTLAHLAM  
 NDFAWTTNGCSVPTSAHTLANQLILRYKACSLYTAYTINREGKNLSNSLSGCGYVGF

**SEQ ID NO: 16 (pmpB)(CT413)**

MKWLSATAVFAAVLPSVSGFCFPEPKELNFSRVGTSSSTTFTETVGEAGAEYTVSGNASF  
 TKFTNIPTTDTTPTNSNSSSSNGETASVSESDSTTTTPDPKGGGAFYNAHSGVLSFMTR  
 SGTEGSLTLSEKITGEGGAIFSQGELLFTDLTGLTIQNNLSQLSGGAIFGESTISLSGITKAT  
 FSSNSAEVPAPVKKPTEPKAQTASETSGSSSSSGNDSVSSPSSSRAEPAAANLQSHFICATA  
 TPAAQTD TETSTPSHKPGSGGAIYAKGDLTIADSQEVLF SINKATKDGGAIFAEKDV SFEN  
 ITSLKVQTN GAEKGGAIYAKGDL SIQSSKQSLFNSNY SKQGGGALYVEGDINFQDLEEIR  
 IKYNKAGTFETKKITLPKAQASAGNADAWASSSPQSGSGATTVSNSGDSSSGSDSDTSET  
 VPATAKGGGLYTDKNLSITNITGHEIANNKATDVGGGAYVKGT LTCENSHRLQFLKNSS  
 DKQGGGIYGEDNITLSNLTGKTLFQENTAKEEGGGLFIKGTDKALTM TGLDSFCLINNTS  
 EKHGGGAFVTK EISQTYTSDVETIPGITPVHGETVITGNKSTGGNGGGVCTKRLALS NLQ  
 SISISGNSAAENG GGAHTCPDSFPTADTAEQPAASAAATSTPESAPVVSTALSTPSSSTVSS  
 LTLAASSQASPATSNKETQDPNADTDLLIDYVVDTTISKNTAKKGGGIYAKKAKMSRID  
 QLNISENSATEIGGGICCKESLELDALVSLSVTENLVGKEGGGLHAKTVNISNLKSGFSFS  
 NNKANSSSTGVATTASAPAAAAASLQAAAAAVPSSPATPTYSGVVGGAIYGEKVTFQSQC  
 SGTCQFSGNQ AIDNNPSQSSLNVQGGAIYAKTSLSIGSSDAGTSYIFSGNSVSTGKSQTTG  
 QIAGGAIYSPTVTLNCPATFSNNTASMATPKTSSSEDGSSGNSIKDTIGGAIAGTAITLSGVS  
 RFGSNTADLGAAIGTLANANTPSATSGSQNSITEKITLENGSFIFERNQANKRGAIYSPSVS  
 IKGNNITFNQNTSTHDGSAIYFTKDATIESLGSVLFTGNNVTATQASSATSGQNTNTANY

GAAIFGDPGTTQSSQTDAILTLLASSGNITFSNNSLQNNQGDTPASKFCSIAGYVKLSLQA  
 AKGKTISFFDCVHTSTKKIGSTQNVYETLDINKEENSNPYTGTIVFSSELHENKSYIPQNAI  
 LHNGTLVLKEKTELHVVSFEQKEGSKLMKPGA VLSNQNIANGALVINGLTIDLSSMGTP  
 QAGEIFSPPELRIVATTSSASGGSGVSSSIPTNPKRISAAAPSGSAATTPTMSENKVFLTGD  
 TLIDPNGNFYQNPMLGSDLDVPLIKLPTNTSDVQVYDLTSLGDLFPQKGYMGWTWLTDSN  
 PQTGKLQARWTFDITYRRWVYIPRDNHFIANSILGSQNSMIVVKQGLINNMLNNARFDDI  
 AYNFWVSGVGTFLAQQTPLSEEFSSYSRGTSVAIDAKPRQDFILGAAPSKMVGKTKA  
 IKKMHNYPFHKGSEYSYQASVYGGKFLYFLLNKQHG WALPFLIQGVVSYGHIKHDTTTLTY  
 PSHERNKGDWEDLGWLADLRISMDLKEPSKDSSKRITVYGELEYSSIRQKQFTEIDYDPR  
 HFDDCA YRNL SLPVGCAVEGAIMNCNILMYNKLALAYMP SIYRNNPVCKYRVLS SNEA  
 GQVICGVPTRTSARA EYSTQLYLGPFWTLYGNYTIDVGMYTLSQMTSCGARMIF

**SEQ ID NO: 17 (pmpC)(CT414)**

MKFMSATAVFAAALSSVTEASSIQDQIKNTDCNVSKLGYSTSQAFTDMMLADNTEYRA  
 ADSVSFYDFSTSSRLPRKHLSSSSEASPTTEGVSSSSSGETDEKTEEELDNGGIIYAREKLT  
 SESQDSL SNQSIELHDNSIFFGEGEVIFDHRVALKNNGAIYGEKEVVFENIKSLLVEVNIAV  
 EKGGSVYAKERV SLENVTEATFSSNGGEGQGGGGIYSEQDMLISDCNNVHFQGNAA GAT  
AVKQCLDEEMIVLLAECVDSL SEDTL DSTPETEQTESNGN QDGSSETEDTQVSESESTPS  
 PDDVLGKGGGIYTEKSLTITGTTGTIDFVSNLATDSGAGVFTKENLSCTNTNSLQFLKNSA  
 GQHGGGAYVTQTMSVTNTTSESITTPPLIGEVIFSENTAKGHGGGICTNKL SLSNLKTVTL  
 TKNSAKESGGAIFTDLASIPITDTPESSTPSSSSPASTPEVVASAKINRFFASTAKPAAPSLTE  
 AESDQTDQTETSDTNSDIDVSIENILNVAINQNTSAKKGGAIYGKKAKLSRINNLELSGNS  
 SQDVGGGLCLTESVEFDAIGSLLSHYNSAAKEGGAIHSKTVTL SNLKSTFTFADNTVKAI  
 VESTPEAPEEIPPVEGEESTATEDPNSNTEGSSANTNLEGSQGD TADTGTGDVN NESQDTS  
 DTGNAESEEQLQDSTQSNEENTLPNSNIDQSNENTDESSDSHTEETDES VSSSSSESGSSTP  
 QDGGAAASSGAPSGDQSI SANACLAKSYAASTDSSPVSNSSGSEEPVTSSSDSDVTASSDNP  
 DSSSSGDSAGDSEEPTEPEAGSTTETLT LIGGGAIYGETVKIENFSGQGIFSGNKAIDNTE  
 GSSSKSDVLGGAVYAKTLFNLD SGSSRRTVTFSGNTVSSQSTTGQVAGGAIYSPTVTIATP  
 VVFSKNSATNNANNTTDTQRKDTFGGAIGATSAVSLSGGAHFLENVADLGSAIGLVPGT  
 QNTETVKLESGSYFEKNKALKRATIIYAPVVSIIKAYTATFNQNRSL EEGSAIYFTKEASIE  
 SLGSVLFTGNLVT LTLSTTTEGTPATTSGDVTKYGA AIFGQIASSNGSQT DNLPKLIASG  
 GNICFRNNEYRPTSSDTGTSTFC SIAGDVKLTMQA AKGKTISFFDAIRTSTKKTGTQATAY  
 DTL DINKSE DSETVNSAFTGTILFSELHENKSYIPQNVVLHSGSLVLKPNT ELHVISFEQK  
 EGSSLVMTPG SVLSNQTVADGALVINNM TIDLSSVEKN GIAEGNIFTPELRIIDTTTGGSG  
 GTPSTDSESNQNSDDTEE QNNNDASNQGESANGSSSPAVAAAHTSRTRNF AAAATATPT  
 TTPTATTTT SNQVILGGEIKLIDPNGTFFQNPALRSDQQISLLVLPTDSSKMQAQKIVLTGD  
 IAPQKGYTGTLTLPDQLQNGTISVLWKFD SYRQWAYVPRDNHFIANSILGSQMLMVT  
 VKQGLLNDKMNLARFEEVSYNLWISGLGTMLSQVGTPTSEEF TYYSRGASVALDAKP  
 AHDVIVGAAPSKMIGKTKSLKRENNYTHKGSEYSYQASVYGGKPFHFVINKKTEKSLPL  
 LLQGVISYGYIKHDTVTHYPTIRERNKGEWEDLGWLTALRVSSVLRTPAQGD TKRITVY  
 GELEYSSIRQKQFTEYDPRYFDNCTYRNLAIPMGLAFEGELSGNDILMYNRFSVAYML  
 SIYRNSPTCKYQVLSSGEGGEIICGVPTRNSARGEYSTQLYLGPLWTLYG SYTIEADAHTL  
 AHMMNCGARMTF

**SEQ ID NO: 18 (pmpD)(CT812)**

MSSEKDIKSTCSKFSLSVVAAILASVSGLASCVDLHAGGQSVNELVYVGPQAVLLLDQIR  
 DLFVGSKDSQAEGQYRLIVGDPSSFQEKDADTLPGKVEQSTLFSVTNPVVFQGV DQQDQ  
 VSSQGLICSFTSSNLDSPRDGESFLGIAFVGDSKAGITLTDVKASLSGAALYSTEDLIFEKI  
 KGGLEFASCSSLEQGGACAAQSILIHDCQGLQVKHCTTA VNAEGSSANDHLGFGGGAFF  
 VTGSLSGEKS LYMPAGDMVVANCDGAISFEGNSANFANGGALAASGKVL FVANDKKTS  
 FIENRALSGGALAASSDIAFQNCAELVFKGNCAIGTEDKGS LGGGAISSLGTVLLQGNHGI

TC DK NESASQGG AIFGKNCQISDNEGPVVFRDSTACLG GGAIAAQEIVSIQNNQAGISFEG  
 GKASFGGGIACGSFSSAGGASVLGTIDISKNLGAISFSRTLCTTSDLGQMEYQGGGALFGE  
 NISLSENAGVLTFKDNIVKTFASNGKILGGGAILATGKVEITNNSEGISFTGNARAPQALPT  
 QEEFPLFSKKEGRPLSSGYSGGGAILGREVAILHNAAVVFEQNRLQCSEEEATLLGCCGG  
 GAVHGMDSIVGNSSVRFGNNYAMGQGVSGGALLSKTVQLAGNGSVDFSRNIASLGG  
 GALQASEGNCELVDNGYVLF RDNRGRVYGG AISCLRGDVVISGNKGRVEFKDNIATRLY  
 VEETVEKVEEVEPAPEQKDNNELSFLGRAEQSFITAANQALFASDGDLSPESSISSEELA  
 KRRECAGGAIFAKRVRIVDNQEA VVFSNNFSDIYGG AIFTGSLREEDKLDGQIPEVLISGN  
 AGDVVFSGNSSKRDEHLPH TGGGAICTQNL TISQNTGNVLFYNNVACSGGAVRIEDHGN  
 VLLEAFGGDIVFKGNSSFRAQGS DAIFYAGKESHITALNATEGHAIVFHDALVFENLEER  
 KSAEVLLINSRENPGYTGSIRFLEAESKVPQCHVQQGSLELLNGATLCSYGFKQDAGAK  
 LVLAAGAKLKILDSGTPVQQGH AISKPEAEIESSEPEG AHSLWIAKNAQTTVPMVDIHTI  
 SVDLASFSSSQEGTVEAPQVIVPGGSYVRSGELNLELVNTTGTGYENHALLKNEAKVPL  
 MSFVASGDEASAEISNLSVSDLQIHVVTPEIEEDTYGHMGDWSEAKIQDGTLVISWNPTG  
 YRLDPQKAGALVFNALWEEGAVLSALKNARFAHNLT AQRMEDYSTNVWGFAFGGFR  
 TLSAENLVAIDGYKGA YGGASAGVDIQLMEDFVLGVSGAAFLGKMDSQKFDAEVSRKG  
 VVGSVYTGFLAGSWFFKGQYSLGETQNDMKTRYGVLGESSASWTSRGVLADALVEYRS  
 LVGPVRPTEYALHFNPYVEVSYASMKEPGETEQGREARSFEDASLTNETIPLGMKEELAEI  
 KGQFSEVNSLGISYAWEAYRKVEGGAVQLLEAGFDWEGAPMDLPRQELRVALENTE  
 WSSYFSTVLGLTAFCGGFTSTDSKLG YEANTGLRLIF

**SEQ ID NO: 19 (pmpE)(CT869)**

MKKAFFFFLIGNSLSGLAREVPSRIFLMPNSVPDPTKESLSNKISLTGDTHNL TNCYLDNL  
 RYILAILQKTPNEGA AVTTTDYLSFFDTQKEGIYFAKNLTPESGGAIGYASPNSPTVEIRDTI  
 GPVIFENNTCCRLFTWRNPYAADKIREGGAHAQNLYINHNHDVVGF MKNF SYVQGGAI  
 STANTFVVSENQSCFLFMDNICIQTNTAGKGGAIYAGTSNSFESNNCDLFFINNACCAGG  
 AIFSPICSLTGNRGNIVFYNNRCFKNVETASSEASDGGAIKVTTRLDVTGNRGRIFFSDNIT  
 KNYGGAIYAPVVTLVDNGPTYFINNIANNKGGA IYIDGTSNSKISADRHAIIFNENTVTNV  
 TNANGTSTSANPPRNAITVASSSGEILLGAGSSQNLIFYDPIEVSNAGVSVSFNKEADQT  
 GSVVFSGATVNSADFHQRNLQTKTPAPLTL SNGFLCIEDHAQLTVNRFTQTGGVVSLGN  
 GAVLSCYKNGTGDSASNASITLKHIGLNLSSILKSGAEIPLWVEPTNNSNNYTADTAATF  
 SLSDVKLSLIDDYGN SPYESTDLTHALSSQPMLSISEASDNQLQSENIDFSGLNVPHYGWQ  
 GLWTWGWAKTQDPEPASSATITDPQKANRFHRTL LLLTWLPAGYVPSPKHSPLIANTLW  
 GNMLLATESLKNSAELTPSGHPFWGITGGGLGMMVYQDPRENHPGFHMRSSGYSAGMI  
 AGQTHTFSLKFSQTYTKLNERYAKNNVSSKNYSCQGEMLFSLQEGFLLTKLVGLYSYGD  
 HNCHHFYTQGENLTSQGTFRSQTMGGA VFFDLPMKPFGSTHILTA PFLGALGIYSSL SHF  
 TEVGAYPRSFSTKTPLINVLVPIGVKGSFMNATHRPQAWTVELAYQPVL YRQEPGIAAQL  
 LASKGIWFGSGSPSSRHAMSYKISQQTQPLSWLTLHFQYHGFYSSSTFCNYLNGEIALRF

**SEQ ID NO: 20 (pmpF)(CT870)**

MIKRTSLSFACLSFFYLSTISILQANETDTLQFRRFTFS DREIQFVLDPASLITAQNIVLSNLQ  
 SNGTGACTISGNTQTQIFSNSVNTTADSGGAFDMVTTSFTASDNANLLFCNNYCTHNKG  
 GGAI RSGGP IRLNNQDVL FYNNISAGAKYVGTGDHNEKNRGGALYATTTTLTGNRTLAF  
 INNMSGDCGGAISADTQISITDTVKGILFENNHTLNHIPYTQAENMARGGAICSRDLCSIS  
 NNSGPIVFNYNQGGKGG AISATRCVIDNNKERIIFSNNSSLGWSQSSSASNGGAIQTTQGF  
 TLRNNKGSIFYDSNTATHAGGAINCGYIDIRDNGPVYFLNNSAAWGA AFNL SKPRSATN  
 YIHTGTGDIVFNNNVVFTLDGNLLGKRKLFHINNNEITPYTSLGAKKDTRIYFYDLFQW  
 ERVKENTSNNPPSPTS RNTITVNPETEFSGAVVFSYNQMSSDIRTLMGKEHNYIKEAPTTL  
 KFGTLAIEDDAELEIFNIPFTQNPTSLLALGSGATLTVGKHGKLNITNLGVILPILKEGKSP  
 PCIRVNPQDMTQNTGTGQTPSSTSSISTPMIIFNGRLSIVDENYESVYDSMDLSRGKAEQLI  
 LSIETTNDGQLDSNWQSSLNTSLLSPPHYGYQGLWTPNWITTTTYTITLNNNSSAPTSATSI

AEQKKTSETFTPSNTTTASIPNIKASAGSGSGSASNSGEVTITKHTLVVNWAPVGYIVDPIR  
 RGDLLANSLVHSGRNM TMGLRSLLPD NSWFALQGAATTLFTKQQKRLSYHGYSSASKG  
 YTVSSQASGAHGHKFLLSFSQSSDKMKEKETNNRLSSRYYLSALCFEHPMFDRIALIGAA  
 ACNYGTHNMRSFYGTKKSSKGKFHSTTLGASLRCEL RDSMPLRSIMLTPFAQALFSRTEP  
 ASIRESGDLARLFTLEQAHTAVVSPIGIKGAYSSDTWPTLSWEMELAYQPTLYWKRPLLN  
 TLLIQNNGSWVTTNTPLAKHSFYGRGSHSLKFSHLKLFANYQAEVATSTVSHYNAGGA  
 LVF

**SEQ ID NO: 21 (pmpG)(CT871)**

MQTSFHKFFLSMILAYSCCSLSGGGYAAEIMIPQGIYDGETLTVSFPYTVIGDPSGTTVFSA  
 GELTLKNLDNSIAALPLSCFGNLLGSFTVLGRGHSLTFENIRTSTNGAALSDSANSGLFTIE  
 GFKELSFNCNSLLAVLPAATTNNGSQTPTTTSTPSNGTIYSKTDLLLLNNEKFSFYSNLV  
 SGDGGAI DAKSLTVQGISKLCVFQENTA QADGGACQVVT SFSAMANEAPIAFIANVAGV  
 RGGGIAAVQDGGQQGVSSSTSTEDPVVSFSRNTAVEFDGNVARVGGGIYSYGNVAFLNNG  
 KTLFLNNVASPVYIAAEQPTNGQASNTSDNYGDGGAIFCKNGAQAAGSNNSGSVSFDGE  
 GVVFFSSNVAAGKGGAIYAKKLSVANCGPVQFLGNIANDGGAIYLGESGELSLSADYGD  
 IIFDGNLKR TAKENAADVNGVT VSSQAISMGS GGKITT LRAKAGHQILFNDPIEMANGNN  
 QPAQSSEPLKINDGEGYTGDIVEANGNSTLYQNVTEIQGRIVLREKAKLSVNSLSQTGGSL  
 YMEAGSTLDFVTPQPPQPPAANQLITLSNLHLSLSSLLANNAV TNPPTNPPAQDSHPAH  
 GSTTAGSVTISGPIFFEDLDDTAYDRYDWLGSNQKIDVLKLQLGTQPSANAPSDLTLGNE  
 MPKYGYQGSWKLA WDPNTANNGPYTLKATWTKTGYNP GPERVASLVPNSLWGSILDIR  
 SAHSAIQASVDGRSYCRGLWVSGVSNFFYHDRDALGQGYR YISGGYSLGANSYFGSSMF  
 GLAFTEVFGRSKDYVVCRSNHACIGSVYLSTKQALCGSYLFGDAFIRASYGFGNQHMK  
 TSYTFAEESDVRWDNNCLVGEIGVGLPIVITPSKLYL NELRPFVQAEFSYADHESFTEEGD  
 QARAFRSGHLMNLSVPVG VKFDRCSS THPNKY SFMGAYICDAYRTISGTQTTLSSHQET  
 WTTDAFHLARHG VIVRGS MYASLTSNIEVYGHGRYEYRDT SRGYGLSAGSKVRF

**SEQ ID NO: 22 (pmpH)(CT872)**

MPFSLRSTSFCLACLCSY SYGFASSPQVLTPNVTT PFKGDDVYLNGDCAFVNVYAGAE  
 NGSII SANGDNLTITGQNHTLSFTDSQGPVLQNYAFISAGETLTLKDFSSLMFSKNVSCGE  
 KGMISGKTVSISGAGEVIFWDNSVGYSPLSIVPASTPTPPAPAPAPAASSSLSP TVSDARKG  
 SIFSVETSLEISGVKKGV MFDNNAGNFGTVFRGNSNNNAGSGGSGSATTPSFTVKNCCKGK  
 VSFTDNVASC GGGGVVYKGTVLFKDNEGGIFFRGNTAYDDLGLAATSRDQNTETGGGG  
 GVICSPDDSVKFEGNKGSIVFDYNFAKGRGGSILTKEFSLVADDSVVFSNNTAEKGGGAI  
 YAPTIDISTNGGSILFERNRAAE GGAICVSEASSGSTGNLTLSASDGDIVFSGNMTSDRPGE  
 RSAARILSDGTTVSLNASGLSKLIFYDPVVQNN SAAGASTPSPSSSSMPGAVTINQSGNGS  
 VIFTAESLTPSEKLQVLNSTSNFPGALTVSGGELVVTEGATLTTGTITATSGRVTLGSGAS  
 LSAVAGAANNNYTCTVSKLGIDLESFLT PNYKTAILGADGTVTVNSGSTLDLVMESAE  
 VYDNPLFVGSLTIPFVTLSSSSASNGVTKNSVTINDADAAHYGYQGSWSADWTKPPLAP  
 DAKGMVPPNTNNTLYLTWRPASNYGEYRLDPQRKGELVPNSLWVAGSALRTFTNGLKE  
 HYVSRDVGFVASLHALGDYILNYTQDDRDGFLARYGGFQATAASHYENGSI FGVAFGQ  
 LYGQTKSRMYYSKDAGNMTMLSCFGRSYVDIKGTETVMYWETAYGYSVHRMHTQYF  
 NDKTQKFDHSKCHWHNNNYAFVGA EHNFL EYCIPT RQFARDYELTGFMRFEMAGGW  
 SSSTRETGSLTRYFARGSGHNMSLP IGVAVHAVSHVRRSPPSKLTLNMGYRPDIWRVTPH  
 CNMEIANGVKTPIQGSPLARHAFFLEVHDTLYIHHFGRAYMNYSLDARRRQTAHFVSM  
 GLNRIF

**SEQ ID NO: 23 (pmpI)**

MRPDHMFCCCLCAAILSS TAVLFGQDPLGETALLTKNPNHV VCTFFEDCTMESLFPALC  
 AHASQDDPLYVLGNSYCWFVSKLHITDPKEALFKEKGDL SIQNFRFLSFTDCSSKESSPSII  
 HQKNGQLSLRNNGSMSFCRNHAEGSGGAISADAFSLQHNYLFTA FEENS SKGNNGGAIQA

QTFSLSRNVSPISFARNRADLNGGAICCSNLICSGNVNPLFFTGNSATNGGAICCIDLNTS  
 EKGSLSLACNQETLFA SNSAKEKGGAIYAKHMLR YNGPV SFNN SAKIGGAIAIQSGGS  
 LSILAGEGSVLFQNN SQR TSDQGLVRNAIYLEKDAILSSLEARNGDILFFDPVQESSKES  
 PLPSSLQASVTSPTPATASPLVIQTSANRSVIFSSERLSEEEKTPDNLTSQLQQPIELKSGRL  
 VLKDRAVLSAPSLSQDPQALLMEAGTSLKTSSDLKLATLSIPLHSLDTEKSVTIHAPNLSI  
 QKIFLSNSGDENFYENVELLSKEQNNIPLLTLSKEQSHLHLPDGNLSSHFGYQGDWTFWS  
 KDSDEGHSLIANWTPKNYVPHPERQSTLVANTLWNTYSDMQAVQSMINTIAHGGA YLF  
 GTWGS AVSNLFY AHDSSGKPIDNWHHRSLGYLFGISTHSLDDHSFCLAAGQLLGKSSDSF  
 ITSTETTSYIATVQAQLATPLMKISAQACYNESIHCLKTKYRSFSKEGFGSWHSVAVSGEV  
 CASIPVSNGLFSSFSIFSKLQGFSGTQDGFEESSGEIRSFSASSFRNISLPMGITFEKKSQ  
 KTRNYYYFLGAYIQDLKRDVESGPVLLKNAVSWDAPMANLDSRAYMFRLTNQRALH  
 RLQTLLNVSYVLRGQSHSYSLDLGTTYRF

**SEQ ID NO: 24 (MOMP)(CT681)**

MKKLLKSVLVFAALSSASSLQALPVGNPAEPSLMIDGILWEGFGGDPCDPCATWCDAIS  
 MRVGY YGDFVFDRLKTDVNKEFQMGAKPTTDTGNSAAPSTLTARENPA YGRHMQDA  
 EMFTNAACMALNIWDRFDVFCTLGATSGYLKGNSASFNLVGLFGDNENQKTVKAESVP  
~~NMSEDQSVVELYTDTEFAWSVGARAALWECGCATLGASEQYAQSKPKVEELNVLCNA~~  
 AEFTINKPKGYVGKEFPLDLTAGTDAATGTKDASIDYHEWQASLALS YRLNMFTPYIGV  
 KWSRASFDADTIRIAQPKSATAIFDTTTLNPTIAGAGDVKTGAEGQLGDTMQIVSLQLNK  
 MKSRKSCGIAVGTTIVDADKYAVTVETRLIDERAHVNAQFRF

**SEQ ID NO: 25 CSFIGGITYL**

**SEQ ID NO: 26 SFIGGITYL**

**SEQ ID NO: 27 SIIGGITYL**

**SEQ ID NO: 28 (Cap1)(CT529)**

MASICGRLGSGTGNALKAFFTQPNNKMARVVNKTGMDKTIKVAKSAAELTANILEQA  
 GGAGSSAHITASQVSKGLGDARTVVALGNAPNGALPGTVQSAQSFFSHMKAASQKTQE  
 GDEGLTADLCVSHKRRAAAAVCSIIIGGITYLATFGAIRPILFVNKMLAKPFLSSQTKANM  
 GSSVSYIMAAANHAASVVGAGLAISAERADCEARCARIAREESLLEVPGEENACEKKVAG  
 EKAKTFTRIKYALLTMLEKFLECVADVFKLVPLPITMGIRAI VAAGCTFTSAIIGLCTFCAR  
 A

**SEQ ID NO: 29 (groEL-like hsp60 protein)**

MVAKNIKYNEEARKKIQKGVKTLAEAVKVTLGPKGRHVVIDKSFGSPQVTKDGVTVAK  
 EVELADKHENMGAQMVKEVASKTADKAGDGTATVLAELIYTEGLRNVTAGANPMD  
 LKRGIDKAVKVVVDQIRKISKPVQHHKEIAQVATISANNDABEIGNLIAEAMEKVGKNGSI  
 TVBEAKGFETVLDIVEGMNFNRGYLSSYFATNPETQECVLEDALVLIYDKKISGIKDFLPV  
 LQQVAESGRPLLIAEDIEGEALATLVVNRIRGGFRVCAVKAPGFGDRRKAMLEDIAITG  
 GQLISEELGMKLENANLAMLGKAKKVIVSKEDTTIVEGMGEKEALEARCESIKKQIEDSS  
 SDYDKEKLQERLAKLSGGVAVIRVGAATEIEMKEKKDRVDDAQHATIAAVEEGILPGGG  
 TALIRCIPTLEAFLPMLTNEDEQIGARIVLKALSAPLKQIAANAGKEGAIIFQQVMSRSANE  
 GYDALRDAYTDMLEAGILDPKAVTRSALESAASVAGLLLTTEALIAEIPPEKPAAAPAMP  
 GAGMDY

**SEQ ID NO: 30 (omp2/omcB)**

MRIGDPMNKLIRRAVTIFAVTSVASLFASGVLETSMAESLSTNVISLADTKAKDNTSHKS  
 KKARKNHSKETPVDRKEVAPVHESKATGPKQDSCFGRMYTVKVNDNRNVEITQAVPEY

ATVGSPYPIETATGKRDCVDVIITQQLPCEAEFVRSDPATTPTADGKLVWKIDRLGQGEK  
 SKITVWVKPLKEGCCFTAATVCACPEIRSVTKCGQPAICVKQEGPENACLRCPVVYKINI  
 VNQGTATARNVVVENPVPDGYAHSSGQRVLTFTLGDMQPGEHRTITVEFCPLKRGRAT  
 NIATVSYCGGHKNTASVTTVINEPCVQVSLAGADWSYVCKPVEYVISVSNPGDLVLRDV  
 VVEDTLSPGVTVLEAAGAQISCNKVVWTVKELNPGESLQYKVLVRAQTPGQFTNNVVV  
 KSCSDCGTCTSCAEATTYWKGVAAATHMCVVDTCDPVCVGENTVYRICVTNRGSAEDTN  
 VSLMLKFSKELQPVSFSGPTKGTITGNTVVFDLPRLGSKETVEFSVTLKAVSAGDARGE  
 AILSSDTLTPVSDTENTHIY

**SEQ ID NO: 31**

MFRYTLSRSLFFILALFFCSACDSRSMITHGLSGRDANEIVLLVSKGVAAQKVPQAASST  
 GGSGEQLWDISVPAAQITEALAILNQAGLPRMKGTSLDLFAKQGLVPSEMQUEKIRYQEG  
 LSEQMATTIRKMDGIVDASVQISFSPEEEDQRPLTASVYIKHRGVLDNPNSIMVSKIKRLV  
 ASAVPGLCPENVSVVSDRASYSIDITINGPWGLSDEMNYVSVWGIILAKHSLTKFRLVFYF  
 LILLFILSCGLLWVIWKTHTLISALGGTKGFFDPAPYSQLSFTQNKPAKETPGAAEGAE  
 AQTASEQPSKENAEKQEENNEDA

**SEQ ID NO 32 (CT600)**

MRKTIFKAFNLLFSLFLSSCSYPCRDWECHGCDSARPRKSSFGFVFPFYSDEEIQQAFVED  
 FDSKEEQLYKTSAQSTSFRNITFATDSYSIKGEDNLTLASLVRHLHKSPKATLYIEGHTDE  
 RGAAAYNLALGARRANAVKQYLIKQGLAADRLFTISYGKEHPVHPGHNELAWQQNRRT  
 EFKIHAR

**SEQ ID NO 33 (CT541)**

MKNILSWMLMFALPVGCDNGGGSQTSATEKSMVEDSALTDNQKLSRTFGHLLSRQ  
 LSRTEDFSLDLVEVIKGMQSEIDGQSAPLTDTEYEKQMAEVQKASFEAKCSENLASAEKF  
 LKENKEKAGVIELEPNKLQYRVVKEGTGRVLSGKPTALLHYTGSGFIDGKVFDSSSEKNKEP  
 ILLPLTKVIPGFSQGMQGMKEGEVRVLYIHPDLAYGTAGQLPPNSLLIFEVKLIEANDDNV  
 SVTE"

**SEQ ID NO 34 (CT623)**

MKKYFYKGFVGALLACGSTNLAFQAASSMDSQLWSVEDLDSYLSSKGFVETRKRKRDGV  
 LRLAGDVRARWIYAKEDLETTQTPAKPMLPTNRYRSEFNLYVDYTAANSWMTSKMNW  
 VTIAGGESSAAGLDINRAFLGYRFYKNPETQAEVFAEIGRSGLDIFDSDVQFNSNFDGIH  
 LYAARRISEKLPTMIVHGGPFVNNMAEKEYAWVVEAILNKLPGNFVVKTSVVDWNTL  
 TAKTNDPADASAAQPAKPNTKYDYLWQWLVGKSTAMPWFNGQTKNLYTYGAYLFN  
 PLAEIPENWKQSTTPTTKITNGKENHAWFIGCSLGGVRRAGDWSATVRYEYVEALAIPEI  
 DVAGIGRGNQMKYWFAQAQKQGLDPKESNGFTNYKGVSYQFVMGLTDSVSFRAYAAAY  
 SKPANDNLGSDFTYRKYDLGLISSF

**SEQ ID NO 35 (CT700)**

MWLIVASTLLACLAMALVFKA YRHVISFRSYVNQVIRDVRLSVDLKEWAVAEMRLAPIL  
 KKRQYRRKYLFEYIRILRELERFEEAEKLLGEAKKLKLAGAHFFLEVAHKAFRHGAYKE  
 AAHAFSLLSAELMGEREVARYTISLVYLGEVDAAACRIIEPWIGPLAHQEVFISVGHYFAT  
 KRYADAIDFYRRARSLGSCPIDVLYNLAHSLRICGQYVDAGMLFRELLGDPVYKDEAMF  
 NIGLCEQKLGNSKKALLIYQNSSELWVRGDALMMRYAALAAADQQDYQLAEHCWTLAF  
 RCQSYADDWNCCVHYGLALCHLKKYAEAEKVYLRVIQKTPDCLVACKALAWLAGVG  
 HATMISAREGLAYAKRALQIKRSPEVLELLSACEAREGNFDVAYDIQAILAERDTTAKER  
 ERRSQILKNLRQKLPIDQQHIVEVSLLLAA

**SEQ ID NO 36 (CT266)**

MLVESQLGLEDVLEAFSEFNFDIQSKSFIESFQDKKLRRTVIQRFLHHPLLHHHDIARAAAYL  
 LAALEEGVDLGYQFLCMHQTQSGAALLFRRAGFLWGGLPYPGEHAEMAMLLSRIAIFY  
 DTSYEQVQKMIAFQHALFSHERNIFPALWSQEGSRSNQEKTA VSKLLFCQKEARIEDQFT  
 LTDMSLGFWMRRTPSFSA YVSGSGCKSGVGAFLIGDVGV LNYGPCVGDPEGCLGFGLC  
 GQVKEFSCQEKDEEV SISFAGALSQPSSRRTGFSYLQDALFSTNSCYCIDITEQKCHVASS  
 LDRENQDAFFAIFCKGSQCQVCNGPKLRTGSPDSYKGPAYDVLKGEKETVRILSSSPHM  
 EIFSLQGKDRFWGSNFLINLPYTQNSINILFEKA

#### SEQ ID NO 37 (CT077)

MGKFFASYLLILAPFFLQSCSAPSRTTLEGVRMTIPYRIVFGEALSPDAFQQAQKEIDRVF  
 DHIDQTFNNWNPLSEISRINRTTKQTPILSPALFAFLCEIDHFHAFSDGRFDPTLGALKSL  
 WLLHLKSHTIPSQELQHL YKHSSGWHLISLDKTQQTLRKLSPLVQLDLCGTVKGFAVDL  
 LGTACAQFCQNY YVEWGGEIKTKGKHPSGRSWAVASSATPEILHLHDHAIATSGSQYQR  
 WHVDNKTYTHILDPLTGTPLEDSSHPILAVSVINESCAFADAMATALTTFSSKQEALDWA  
 NKKHLCA YTTDKNVS

#### SEQ ID NO 38 (CT456)

MTENSISGYQPTVTTSTSTTSASGASGSLGASSVSTTANATVTOTANATNSAATSSIQTTG  
 ETVVNYTNSASAPNVTVSTSSSSTQATATSNKTSQAVAGKITSPDTSESSETSSSTSSSDHIP  
 SDYDDVGSNSGDISNNYDDVGSNNGDISSNYDDAAADYEPRTTENIYESIGGSRTSGPEN  
 TSGGAAAALNSLRGSSYSNYDDAAADYEPRTTENIYESIGGSRTSGPENTSGGAAAALN  
 SLRGSSYSNYDDAAADYEPRTTENIYESIGGSRTSGPENTSDGAAAALNSLRGSSYTTG  
 PRNEG VFGPGPEGLPDMSLPSYDPTNKTSLLTFLSNPHVKS SKMLENSGHFVFIDTDRSSI  
 LVPNGNWDQVCSIKVQNGKTKEDLDIKDLENMCAKFCTGFSKFSGDWDSLVEPMVSAK  
 AGVASGGNLPNTVIINNKFCTCVAYGPWNSQEASSGYTPSAWRRGHRVDFGGIFEKAND  
 FNKINWGTQAGPSEDDGISFSNETPGAGPAAAPSPTPSSIPINNVNVGGTNVNIGDTNV  
 NTTNTTPTTQSTDASTDTS DIDDINTNNQTD DINTTDKDS DGAGGVNGDISETESSGDDS  
 GSVSSSES DKNASVGNDGPAMKDILSAVRKHLDVVYPGENGGSTEGPLPANQTLGDVIS  
 DVENKGSAQDTKLSGNTGAGDDDPTTTAAVGNGAEEITLSDTDSGIGDDVSDTASSSGD  
 ESGGVSSPSES NKNTAVGNDGPSGLDILAAVRKHLDKVYPGDNGGSTEGPLQANQTLG  
 DIVQDMETTGTSGQETVVSPWKGSTSSTESAGGSGSVQTLSPPTPTSTTLRTGTGATTT  
 SLMMGGPIKADIITGGGGGRIPGGGTLEKLLPRIAHLDISFDAQGD LVSTEEPQLGSIVNK  
 FRQETGSRGILAFVESAPGKPGSAQVLTGTGGDKGNLFQAAA AVTQALGNVAGKVNLA I  
 QGQKLSSLVNDDGKGSVGRDLFQAAAQTTQVLSALIDTVG

#### SEQ ID NO 39 (CT165)

MFQPETVPSNRSTETTPQNIEVYNDRNFTNHTTEDVIRIGERLQRQFYNMTEESRVPFTTS  
 PSHHTGNWKTAFLYNLSQVVAHIFPSTVQPIRVKPTRIPPSPTPPPEGTTTAETSTSENKVT  
 TISKEQEVTTKPLLVRERRSLLHSQ

#### SEQ ID NO 40 (CT713)

MSSKLVNYLRLTFLSFLGIASSTLDAMPAGNPAPFVIPGINIEQKNACSFDL CNSYDVLSA  
 LSGNLKLCFCGDYIFSEEAQVKDVPVVTSTTAGVGPSPDITSTTKTRNFDLVN CNLNTN  
 CVAVAFSLPDRSLSAIPLFDVSFEVKVGGLKQYYRLPMNAYRDFTSEPLNSESEVTDGMI  
 EVQSNYGFVWDVSLKKVIWKDGVSVFVGADYRHASCPIDYIANSQANPEVFIADSDG  
 KLNFKESVVCVGLTTYVNDYVLPYLA FSIGSVSRQAPDDSFKKLEDRFTNLKFKVRKITS  
 SHRGNICIGATNYVADNFFYNVEGRWGSQRAVNVSGGFQF

#### SEQ ID NO 41 (CT082)

MSISGSGNVSPATPDFDPSILMGRQAASAHAAKEASGASKATETSAAEQQALISSGTELD  
 YVTDLQQSEGKYKKTLDKTSKSPKTKLKGNFSKVRAGTKGFLTGFGRASRISARKAEN

NGEGMSMIPSQMEYVKKKGNRVSPMQNFYLGASGLWSPTSDVSSITENCLGATALSTT  
 PLLTTMQDPVSIHLSSGEITALASFNPVVRTASLNEQTINAWTEARLGGMVSTLLDPNI  
 ETSSLLRRAPTVSNEGMVDVSDMGNQTTSLSMEGLVNTVVDDPASAEEEKKTGELSLEE  
 MAAMAKMMAALLSSGQGMVFIASSTPSSGLTQFPEPKFSGTIPHHFSKKEDNETIWGL  
 DSQIGSIAFDTRRENNASPLPTTSLHEEASYRFPVGEAPLDVNEIPFAVQHSTVFSKETANT  
 EQALIQNESLGEIPVSAEVVGQDTVSSAYQFPSHLGMAVLASVPLSTEDYKTAVEHRKGP  
 GGPPDPLIYQYRNVAVDPAIIFQSPSPFSVSSRFSVQGKPEAVAVYNDDQEEAAGGNRDS  
 DEGKDQEQDKTRETEDAGGDS

#### SEQ ID NO 42 (CT181)

MLSKFCKLSLSAILLINTLAPSETFSEEGTSGFLGRMKSWILKDKTILSTTEESQTSABEKVS  
 DLLSWKRYDYTQESGFAIQFPESPEHSEQVIEVPQSDLAIRYDTYVAETPSDSTVYVVSIV  
 EYPEKIDISRPELNLQEGFAGMLYALPESQVLYLKATALQGHKALEFWIACDDVYFRGM  
 LVSVNHTLYQVFMVYKGRSPEILDKEYSTFIQSFKVTKVRNSKKMDIRKRVSL

#### SEQ ID NO 43 (CT050)

MNDTKNNISSFWNPKNVVTKVLLKVSETGIESTPGIVKHNQLITQSENPTDPTDAVTFK  
YLKENYTKENDPNPGFLPTTGGTMTGDDMOGNNVTDIVMYTNGQONPTDDSAVTIGY  
 LNEKADEIKSNDQITFAVAGLSNNSQISTLHQLLGIAEDPDTVTNPDELKTSGGTVYEDI  
 DMSSNTVSDLGTPTNKDTKSAINVEFVQAKITSPQMAFLKNNDTNLSNITVSEYFNWLQ  
 DPTQAPTPEPDPDPEPAPEPEPDTSDSSGSGSENPAADPAPTNPSSDSNAQNNPTPSSNGATAS  
 IRKLAATTTTVPTDTEIAPAAEDPNLPNTTFSEKSPLWEEFFSFSDDSSRSEMVIQKTGILTFS  
 MQGTWENPSSSQTPSTDPISELTVTPPTTDTTPESPSPPEAPAPEATPSPTNNNLTAITK  
 TFSRKYNLSATPSPTPTTPTPEPTTITKTLSSLSSGQSCTLQIPVQATRSVLKLKYVNPNNSS  
 GGSSGSGGSSQPETTPTGITLQSFWSLVLTGPEITKATSTPSTPSQP

#### SEQ ID NO 44 (CT157)

MSVQGSSSLKYSDLFKPPEPTSSSTDSSKEPPKESAWKVVSLSRGRRRARSNPSPTSQNT  
 SPKDSSLVARTDKAATDIFNSAKHKAIEETTKRSDQQSRSLHILHLLAENPEPIVFHSAHQ  
 NHNDPQRMCLDAILQANRITMRIFNIGSPEIRALIRAVRRNIPVVVSAWNFPNLSNWDR  
 ESELCVELRGNPQICLHKKTTLDNQLTIIGTANYTKSSFFKDINLTALIQNPALYSLISDT  
 RGSVSIGSQTISYYPLFPQSNKILPIIQEIQKAQRTIKIAMNIFSHTEIFLALEQARLRGVTI  
 TIVINKKESAHTLDILHRISALLLLKSVTTVDSLHAKICLIDNQTIFGSPNWTYHGMHKN  
 LEDLLIVTPLTPKQIHSIQEIWAFLKNSSPV

#### SEQ ID NO 45 (CT128)

MDRSPLFLIMGAPGSGKGTQSKLLASQLSLLHISSGDLLRDAVSKDTPLSQEIKSYLDQG  
 KLLPDTLVWKLVEKLDEFQQDTLLRRLSFLSRSENSAILDGFPRVTQAKLLHEFLSSYF  
 PNYKVILLDISDEEVLNRLTSRYICPACQGIYNEQQGFSSCPKCSVELIRRSDDTLEVILDRI  
 QTYKQETQPVLDYYTEKQKLITIDANAPTQQVFQSILDSLSASLVYQERDCCNCDDED

#### SEQ ID NO 46 (CT153)

MTKPSFLYVIQPFVFNRLGRFSTDSDTYIEENRLASFIESLPLEIFDIPSFMETAISNSPYI  
 LSWETTKDGALFTILEPKLSACAATCLVAPSIQMKSDAELLEIKQALLRSSHDGVKYRIT  
 RESFSPEKKTPKVALVDDDIELIRNVDFLGRAVDIVKLDPINILNTVSEENILDYSFTRETA  
 QLSADGRFGIPPGTKLFPKPSFDVEISTSIFEETTSFTRSFASVTFSPDLAATMPLQSPPM  
 VENGQKEICVIQKHLFPSYSPKLVDIVKRYKREKILINKLAFGMLWRHRAKSQILTEGS  
 VRLDLQGFTESKYNQIQVGSHTIAAVLIDMDISKIQSKSEQAYAIRKIKSGFQSLDDYH  
 IYQIERKQTFSPKHSLSSTSHSESDLDLSEAAAFSGSLTCEFVKKSTQHAKNTVTCST  
 AAHSLYTLKEDDSSNPSEKRLDSCFRNWIENTKLSANSPDSWSAFIQKFGTHYIASATFGGI  
 GFQVLKLSFEQVEDLHKKISLETAANSLKGSVSSSTESGYSSYSSTSSHTVFLGGTV

LPSVHDERLDFKDWSESVHLEPVPIQVSLQPTNLLVPLHFPNIGAELSNKRESLQQAIR  
 VYLKEHKVDEQGERTTFTSGIDNPSSWFTLEAAHSPLIVSTPYIASWSTLPYLFPTLRERSS  
 ATPIVFYFCVDNNEHASQKILNQSYCFLGSLPIRQKIFGSEFASFPYLSFYGNAKEAYFDNT  
 YYPTRCGWIVEKLNTTQDQFLRDGDEVRLKHVSSGKYLATTPLKDTHTGLTRTTNCEDA  
 IFIHKSSGY

**SEQ ID NO 47 (CT262)**

MKKFLLLSLMSLSSLPTFAANSTGTIGIVNLRRCLEESALGKKESAEFKMKNQFSNSMG  
 KMEEELSSIYSKLQDDDYMEGLSETAAELRKKFEDLSAEYNTAQGGYYQILNQSNLKR  
 MQKIMEEVKKASETVRIQEGLSVLLNEDIVLSIDSSADKTDVAVIKVLDDSFQNN

**SEQ ID NO 48 (CT276)**

MFKRPAKNFFDEVQTLYEDSGANSTSYSIYPQRTERLENHSNIFEPAPKPAETRLLSQEEHS  
 QWTDQQEELATQESSFPEEPETTLGEGVSFKGELTFERLLRIDGTFEGILVSKGKIIVGPQG  
 YVKANIELEEAVIAGVVEGNITVTGRVSLQGRAMVTGDIQAGSLCVDEGVRLCGYVSIQ  
 GAPSNEQEEIDS

**SEQ ID NO 49 (CT296)**

MRAVLHLEHKRYFQNHGHILFEG LAPVSDCKQLEAELKLFLKEVAVVKDRHLQRWREN  
 VHRTLPEVQMIVKRVRLDHLAAELTHRSRVALVRDLWVQKQEEIFFDDCDCSVLLCLSG  
 EKAGWGLFFSGEYPQDVFNWGAGDTAILRFSSAGFPN

**SEQ ID NO 50 (CT372)**

MQAAHHHYHRYTDKLHRQNHKKDLISPKPTEQEACNTSSLSEKELPLSEQRGLLSPICDFI  
 SERPCLHGVSVRNKQALKNSAGTQIALDWSILPQWFNPRVSHAPKLSIRDFGYSAHQTV  
 TEATPPCWQNCFNPSAAVTIYDSSYGKGVFQISYTLVRYWRENAATAGDAMMLAGSIN  
 DYP SRQNI FSQFTFSQNF PNERVSLTIGQYSLY AIDGTLYNNDQQLGFISYALSQNPTATYS  
 SGSLGAYLQVAPTASTSLQIGFQDAYNISGSSIKWSNLTKNRYNFHGFASWAPRCCLGSG  
 QYSVLLYVTRQVPEQMEQTMGWSVNASQHISKL YVFGRYSGVTGHVFPINRTYSFGM  
 ASANLFNRNPQDLFGIACAFNNVHLSASPNTKRKYETVIEGFATIGCGPYLSFAPDFQLYL  
 YPALRPNKQSARVYSVRANLAI

**SEQ ID NO 51 (CT412)**

MNRVIEIHAHYDQRQLSQSPNTNFLVHHPYLTLPKFLLGALIVYAPYSFAEMELAISGHK  
 QGKDRDTFTMISSCPEGTNYIINRKLILSDFSLLNKVSSGGAFRNLAGKISFLGKNSSASIH  
 FKHININGFGAGVFSESSIEFTDLRKLVAFGSESTGGIFTAKEDISFKNNHHIAFRNNITKGN  
 GGVIQLQGDMKGSVSFVDQRGAIIFTNNQAVTSSSMKHSRGGGAISGDFAGSRILFLNNQ  
 QITFEGNSAVHGGAIYNKNGLVEFLGNAGPLAFKENTTIANGGAIYTSNFKANQQTSPILF  
 SQNHANKKGGAIYAQYVNLEQNQDTIRFEKNTAKEGGGAI TSSQCSITAHNTIIFSDNAA  
 GDLGGGAILLEGKKPSLT LIAHSGNIAFSGNTMLHITKKASLDRHNSILIKEAPYKIQ LAA  
 NKNHSIHFFDPVMALSASSSPIQINAPEYETPFFSPKGMIVFSGANLLDDAREDVANRTSIF  
 NQPVHLYNGTLSIENG AHLIVQSFKQTGGRISLSPGSSLALYTMNSFFHGNISSKEPLEING  
 LSFGVDISPSNLQAEIRAGNAPLRLSGSPSIHDPEGLFYENRDTAASPYQMEILLTSDKIVDI  
 SKFTTDSLVTNKQSGFQGAWHFSWQPNTINNTKQKILRASWLPTGEYVLESNRVGRAVP  
 NSLWSTFLLQTASHNLGDHLCNNRSLPTS YFGVLIGGTGAEMSTHSSEESFISRLGAT  
 GTSIRLTPSLT LSGGGSHMFGDSFVADLPEHITSEGIVQNVGLTHVWGPLTVNSTLCAAL  
 DHNAMVRICKKDH TYGKWD TFGMRGTLGASYTFLEYDQTMRVFSFANIEATNILQRA  
 FTETGYNPRSF SKTKLLNIAPIGIGYEFCLGNSSFALLGKGSIGYSRDIKREN PSTLAHLAM  
 NDFAWTTNGCSVP TSAHTLANQLILRYKACSLYITAYTINREGKNLSNSLSCGGYVGF

**SEQ ID NO 52 (CT480)**

MIDKIIRTLVLSLFLLYWSSDLLEKDVKSIKRELKALHEDVLELVRISHQQKNWVQSTDF  
SVSPEISVLKDCGDPAFPNLLCEDPYVEKVVPSSLKEGFVPGILRTAQVGRPDNLSPFNG  
FVNIVRFYELCVPNLAVEHVKGKYEAFAPSLALKIEEHYVEDGSGDKEFHILRPNMFWEF  
IDPTLFPKNITLADSFLRPHVTAHDVKFYDVMNPYVAEMRAVAMRSYFEDMVSVR  
VENDLKLIVRWRAHTVRNEQGEEKKVLYSAFANTLALQPLPCFVYQHFANGEKIVPED  
SDPDTYRKDSVWAQNFSSHWAYNYIVSCGAFRFAGMDDEKITLVRNPNYHNPFAALVE  
KRYTYMKDSTDLSLFDKAGKVDIAYFPPNHVDNLASFMTSAAYKEQAARGEALIEKNS  
SDRSYSYIGWNCLSLFFNNRSVRQAMNMLIDRDRIEQCLDGRGVSVSGPFSLCSPSYNR  
DVEGWQYSPEEAARKLEEEGWIDADGDGIREKVIDGVVVPFRFRLCYVVKSVTARTIAE  
YVATVCKEVGHECCLLGLDMADYSQALEEKNFDAILSGWCLGTPPEDPRALWHSEGALE  
KGSANAVGFCNEEADRIEQLSYEYDSNKRQALYHRFHEVIHEESPYAFLYSRQYSLVYK  
EFVKNIFVPTEHQDLIPGAQDET VNLSMLWVDKEEGRCSAIS

#### SEQ ID NO 53 (CT548)

MLKMFVNLNSLVFFSLLLSACGYTVLSPHYVEKKFSLSEGIYVCPIEGDSLGLDVSSLSYEL  
EKRGLHTRSQGTSSGYVLKVSLEFNETDENIGFAYTPQKPDEKPVKHFTVSNEGRRLALSAK  
VQLIKNRTQEILVEKCLRKSVTFDFQPD LGTANAHQLALGQFEMHNEAIKSASRILYSQL  
AETIVQQVYYDLF

#### SEQ ID NO 54 (CT043)

MSRQNAEENLKNFAKELKLPDVAFDQNNTCILFVDGEFSLHLTYEEHSDRLYVYAPLLD  
GLPDNPQRRALYEKLLLEGSM LGGQ MAGGGVGVATKEQLLMHCVLDMKYAETNLLK  
AFAQLFIETVVKWRTVCSDISAGREPTVDTMPQMPQGGGGGIQPPPAGIRA

#### SEQ ID NO 55 (CT635)

MKNNSAQKIIDSIIKQILSIYKIDFEP SFGATLTDDNDLDYQMLIEKTQEKIQELDKRSQEIL  
QQTGMTREQMEVFANNPDNFSPEEWRALENIRSSCNEYKKETEELIKEVTNDIGHSSHKS  
PTPKKTKSSSQKSKKKKNWIPL

#### SEQ ID NO 56 (CT859)

MRKIILCSPRGFCAGVIRAIQTVEVALEKWGRPIYVKHEIVHNRHVVDKLREKGAIFIEDL  
QEVPRNSRVIFSAHGVPPSVREEAEERGLIADATCGLVTKVHSAVKMYAKKGYHILIGK  
RKHVEIIGIRGEAPDQITVENIAEVEALPFS AQDPLFYVTQTTL SMDDAADIVAALKARY  
PRIFTLPSSSICYATQNRQGALRNILPQVDFVYVIGDTQSSNSNRLREVAERRGV TARLVN  
HPDEVTEELQYSGNIGITAGASTPEDVVQACLMKLQELIPDLSIEMDLFVEEDTVFQLPK  
EL

#### SEQ ID NO 57 (CT671)

MELNKTSESLFSAKIDHNHPRTEAHEPRDQREV RVFSLEGRSSTRQEKADRMPGRTSSRQ  
ESSKGSEEGAVHESTAGVSSKEEEESKGDGFFTGGNPTSGMALVETPMAVVSEAMVETS  
TMTVSQVDLQWVEQLVTSTVESLLVADIDGKQLVEIVLDNSNTVPAAFCGANLTLVQTG  
EEISVSFSNFVDQAQLTEATQLVQQNPKQLVSLVESL KARQLNLTEL VVGNAVAVSLPTIE  
KIETPLHMIAATIRHHDQEGDQEGEGRQDQHQQHQHQQEKKVEEAHI

#### SEQ ID NO 58 (CT016)

MKVKINDQFICISPYISARWNQIAFIESCDGGTEGGITLKLHLIDGETVSIPNLGQAIVDEVF  
QEHLLEYESTAPQKNKEEEKISSLLGAVQQMAKGCEVQVFSQKGLVSM LLGGAGSINV L  
LQHSPEHKDHPDLPTDLLERIAQMMRSLSIGPTSILAKPEPHCNCLHCQIGRATVEEEDAG  
VSDLDLTFRSWDISQS GEKMYTVTDPLNPEEQFNVYLGTPIGCTCGQPYCEHVKA VLYT

#### SEQ ID NO 59 (CT017)

MLIFALSFGADACLCAADLSKAKVEASVGDRAAFSPFTGEIKGNRVRLRLAPHTDSFIIKE  
LSKGDCLAVLGESKDYYVVAAPGVVRYVFRFVLDNVIEGEKVNVRLEPSTSAPILARL  
SKGTVVKTLGAAQGWIEIALPKQCVFYVAKNFVKNVGALDLYNQKEGQKKLALDLLS  
SAMDFADAELQKKIEDIDLDAIYKKMNLAQSEEFKDVPGQLQSLVQKALERVQEAFLAKS  
LEKSSVKVPEIRHKVLEEIAVVSPA VEETPVVTKTEEQKVTTVPVPAPAVVTEPAQDLSSV  
KGSLLSHYIRKKGFVKASPVIEGRESFERSLFAVWLSLQPEEIRHQLTMESFYRDEQKKKR  
VLTGELEVYPHIVKNNPGDYLLKNGEDVVAFFVYATSIDLSKWLGKSVVLECVSRPNNHF  
AFPAYTVLSVKEGA

**SEQ ID NO 60 (CT043)**

MSRQNAEENLKNFAKELKLPDVAFDQNNTCILFVDGEFSLHLTYEEHSDRLYVYAPLLD  
GLPDNPQRRALYEKLLLEGSM LGGQMAGGGVGVATKEQLILMHCVLDMKYAETNLLK  
AFAQLFIETVVKWRTVCSDISAGREPTVDTMPQMPQGGGGGIQPPPAGIRA

**SEQ ID NO 61 (CT548)**

MLKMFWLNSLVFFSLLLSACGYTVLSPHYVEKKFSLSEGIYVCPIEGDSLGDVSSLSYEL  
EKRGLHTRSQGTSSGYVLKVSLFNETDENIGFAYTPQKPDEKPVKHFIVSNEGRALSAK  
VQLIKNRTQEILVEKCLRKSVTFDFQPD LGTANAHQLALGO FEMHNEAIKSASRILYSQ  
AETIVQQVYYDLF